

Notice of Removal Attachment No. 2

Amended Answer and Counterclaim

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Honorable Catherine Shaffer
KING COUNTY

SUPERIOR COURT CLERK

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CASE NUMBER: 18-2-05212-2 SEA

SUPERIOR COURT OF THE STATE OF WASHINGTON
KING COUNTY

PHYTELLIGENCE, INC.,

Plaintiff,

v.

WASHINGTON STATE UNIVERSITY,

Defendant.

No. 18-2-05212-2 SEA

AMENDED ANSWER AND
COUNTERCLAIM

ANSWER

1. WSU admits, on information and belief, paragraph 1.
2. WSU admits paragraph 2.
3. Paragraph 3 states a conclusion of law to which no answer is required.
4. WSU admits that Dr. Amit Dhingra is an associate professor at WSU, and is without knowledge or information sufficient to form a belief as to the truth of the remaining allegations of paragraph 4.
5. WSU is without knowledge or information sufficient to form a belief as to the truth of paragraph 5.
6. WSU is without knowledge or information sufficient to form a belief as to the truth of paragraph 6.
7. WSU admits the allegations of the first sentence of paragraph 7. WSU denies the allegations of the second sentence of paragraph 7, as it is clear that the first sentence of

1 paragraph 7 uses “WSU” to mean an entity separate from Washington State University
2 Research Foundation (“WSURF”).

3 8. WSU admits that on or about November 27, 2012, Phytelligence and WSURF
4 entered into an Agreement to Propagate Apple Cultivar Plant Materials for Washington State
5 University (“Propagation Agreement”) and that the Propagation Agreement is attached to the
6 Complaint as Exhibit A. WSU alleges that the Propagation Agreement speaks for itself and is
7 the best evidence of its contents. WSU admits that the Propagation Agreement contains the
8 recitals that are quoted in the final sentence of paragraph 8. WSU denies the remaining
9 allegations of paragraph 8.

10 9. WSU denies paragraph 9.

11 10. WSU denies paragraph 10.

12 11. WSU admits that Phytelligence obtained certified virus-tested WA 38 budwood
13 from WSU and denies the remaining allegations of paragraph 11.

14 12. WSU denies the allegations of the first sentence of paragraph 12, and is without
15 knowledge or information sufficient to form a belief as to the truth of the remainder of
16 paragraph 12.

17 13. WSU denies paragraph 13.

18 14. WSU denies the allegations of the first sentence of paragraph 14. WSU admits
19 that commercial licenses to propagate WA 38 began to be granted in 2014, is without
20 knowledge or information sufficient to form a belief as to the truth of the allegation that
21 Phytelligence has maintained itself as an authorized provider in good standing by the “WA
22 State Fruit Tree Certification Program,” and denies the remaining allegations of the second
23 sentence of paragraph 14.

24 15. WSU denies paragraph 15.

25 16. WSU denies paragraph 16.

26 17. WSU admits the first sentence of paragraph 17. WSU lacks knowledge or
27 information sufficient to form a belief as to the truth of the remainder of paragraph 17.

1 18. WSU is without knowledge or information sufficient to form a belief as to the
2 truth of paragraph 18.

3 19. WSU admits that it and Proprietary Variety Management, LLC (“PVM”)
4 entered into a Management Contract for Commercialization of Washington State University
5 Apple Cultivar, ‘WA 38’ (the “Management Contract”), effective June 27, 2014, and alleges
6 that the Management Contract speaks for itself and is the best evidence of its contents. WSU
7 denies the remaining allegations of paragraph 19.

8 20. WSU denies paragraph 20.

9 21. WSU lacks knowledge or information sufficient to form a belief as to the truth
10 of the allegations of paragraph 21.

11 22. WSU admits that Phytelligence contacted it in 2016 regarding obtaining a
12 license to propagate and distribute WA 38 plants and denies the remaining allegations of
13 paragraph 22.

14 23. WSU denies the allegations of the first sentence of paragraph 23, and alleges
15 that the Propagation Agreement speaks for itself and is the best evidence of its contents. WSU
16 is without knowledge or information sufficient to form a belief as to the truth of the allegations
17 of the second and third sentences of paragraph 23. WSU admits the allegations of the fourth
18 sentence of paragraph 23. WSU denies the allegations of the fifth sentence of paragraph 23.

19 24. WSU denies the allegations of paragraph 24.

20 25. WSU admits that on January 16, 2018 it gave Phytelligence notice that the
21 Propagation Agreement was terminated effective March 17, 2018 because of Phytelligence’s
22 material breach of the agreement, and has demanded that Phytelligence destroy all Plant
23 Materials of the WA 38 cultivar, as required by paragraph 7 of the Propagation Agreement.
24 WSU denies all remaining allegations of paragraph 25.

25 26. WSU restates and incorporates by reference its responses to paragraphs 1
26 through 25 above.

27 27. WSU denies paragraph 27.

28. WSU denies paragraph 28.

29. WSU restates and incorporates by reference the responses to paragraphs 1 through.

30. WSU denies paragraph 30.

31. WSU denies paragraph 31.

AFFIRMATIVE DEFENSES

1. WSU's duty to perform under the Propagation Agreement has been excused by Phytelligence's material breach of that agreement.

2. Phytelligence's claims are barred in whole or in part by its failure to perform a condition precedent to WSU's performance.

3. Phytelligence's claims are barred in whole or in part by estoppel.

4. Phytelligence's claims are barred in whole or in part by unclean hands.

COUNTERCLAIM

I. INTRODUCTION

1. This Counterclaim involves WSU's rights in the patented apple cultivar known as WA 38, the tree that bears COSMIC CRISP brand apples. The Propagation Agreement permitted Phytelligence to propagate WA 38 trees, but strictly forbade it from transferring or selling the trees to any third party. The Propagation Agreement also gave Phytelligence the possibility of obtaining permission in the future to sell WA 38 trees as well as propagating them. To this day, Phytelligence has never taken the steps necessary to obtain that permission. Rather, in violation of the Propagation Agreement, Phytelligence has sold and delivered WA 38 trees to at least one grower, Evans Fruit Company. By its actions, Phytelligence has breached the Propagation Agreement and has also infringed both the plant patent that protects the WA 38 cultivar and WSU's COSMIC CRISP trademark. In this Counterclaim, WSU seeks redress for Phytelligence's breach of the Propagation Agreement, patent infringement, and trademark infringement.

II. PARTIES

2. WSU is a state university of the State of Washington.

3. Phytelligence is a Washington corporation with its principal place of business in Seattle, Washington. Phytelligence has regular and established places of business located in Seattle, Burien, and Pullman, Washington.

III. FACTS

A. Development of WA 38 and COSMIC CRISP Brand Apples

4. Beginning in 1998, WSU Professor Bruce H. Barritt began the work that resulted in the new apple variety that is now called WA 38. Dr. Barritt selected the WA 38 cultivar from among thousands of seedlings that he created by cross-pollinating existing apple varieties. The seed for WA 38 was germinated and grown in a greenhouse at the Washington State University Tree Fruit Research and Extension Center in Wenatchee in 1998. The seedling was transferred to a collaborating commercial nursery in May 1998, where it grew until September 1999, when it was budded onto root stock. The resulting tree was planted in WSU's Columbia View Orchard in April 2001. Dr. Barritt and his co-workers evaluated fruit from this original budded tree in 2002 and 2003. Based on the excellent quality of that fruit, a second generation of trees was created in September 2004 by taking buds from the original seedling tree and propagating them onto root stock. These second generation trees were planted at three sites in Washington State. Additional trees were propagated in 2006 by propagating buds from the original seedling tree onto root stock. These trees were used for larger scale plantings in 2008 at four commercial orchard sites in central Washington. Since 2008, trees reproduced from the original seedling tree have been grown in four locations across Washington and evaluated for horticultural traits and storage behavior by WSU Professor Katherine Evans and scientists from the Washington Tree Fruit Research Commission. A comparison of the second generation trees against the originally budded tree showed them to be essentially the same and stable over the years 2009 through 2012.

5. On February 23, 2012, Dr. Barritt filed an application with the United States Patent & Trademark Office seeking a plant patent on the WA 38 apple tree. The United States Patent & Trademark Office issued U.S. Plant Patent No. 24,210, which discloses and claims the WA 38 apple tree, on February 4, 2014. A copy of U.S. Plant Patent No. 24,210 is attached to this Amended Answer and Counterclaim as Exhibit A. U.S. Plant Patent No. 24,210 has been assigned to WSU.

6. An apple from a WA 38 apple tree is large and juicy, and remarkably firm with crisp texture. Its flavor profile provides ample sweetness and tartness, making it an excellent eating apple. It is also slow to brown when cut and maintains its texture and flavor in storage for more than a year.

7. WA 38 is the generic name for the apple cultivar that Dr. Barritt developed and is claimed by U.S. Plant Patent No. 24,210. WSU has adopted the trademark COSMIC CRISP as a brand name for use in marketing those trees and the apples they produce. The U.S. Patent & Trademark Office has issued U.S. Trademark Registration No. 5,330,199 to WSU for the trademark COSMIC CRISP in connection with apples and apple trees, and WSU has common law rights in the COSMIC CRISP trademark that predate the issuance of the registration.

8. WSU issues licenses to grow WA 38 apple trees and to use the COSMIC CRISP trademark only to growers located in the state of Washington. As of 2017, approximately 629,000 WA 38 trees had been planted in Washington, and approximately 5,000,000 additional WA 38 trees are expected to be planted in 2018. COSMIC CRISP brand apples are expected to be on the market in significant quantities beginning in 2019.

B. Phytelligence and the Propagation Agreement

9. On information and belief, Phytelligence was formed in 2011 to commercialize technology that was developed at WSU by WSU Professor Amit Dhingra, Ph.D., in areas including soilless tissue culture and ripening chemistries. In 2012 WSURF granted Phytelligence an exclusive, royalty-bearing license on the technology that Dr. Dhingra developed in the course of his employment at WSU, and in connection with the grant of that

1 license Phytelligence issued shares in the company to WSURF. WSU has since succeeded to
2 WSURF's rights and obligations under the exclusive license agreement with Phytelligence.
3 WSU has an interest in the company's success, because it receives royalties based on revenue
4 Phytelligence earns from the licensed technologies, and because it has a beneficial interest in
5 the shares that Phytelligence issued to WSURF.

6 10. In November 2012, Phytelligence and WSURF entered into the Propagation
7 Agreement. WSU has since succeeded to WSURF's rights and obligations under the
8 Propagation Agreement.

9 11. The Propagation Agreement grants Phytelligence permission to propagate
10 WA 38 apple trees, subject to strict limits. Phytelligence was free to propagate as many or as
11 few WA 38 trees as it desired (or none at all), using budwood obtained from a source approved
12 by WSU. The Propagation Agreement specifies that any WA 38 trees propagated by
13 Phytelligence would remain the sole and absolute property of WSU or WSURF, unless
14 Phytelligence later obtained permission to distribute them to third parties.

15 12. Under the Propagation Agreement, Phytelligence's only affirmative obligations
16 with respect to WA 38 trees it propagated were to (a) secure them against misappropriation by
17 third parties to the best of its ability, (b) pay all costs of establishing and maintaining the trees,
18 (c) permit WSU Professor Katherine Evans a reasonable opportunity to observe the trees upon
19 request, and (d) provide annual written propagation reports. The Propagation Agreement
20 forbade Phytelligence to ship, transport, transfer, sell, offer to sell, or disclose any information
21 regarding WA 38 trees to any third party, or to abandon any of the trees. The Propagation
22 Agreement does not grant permission to use the COSMIC CRISP trademark.

23 13. The Propagation Agreement also granted Phytelligence the opportunity to
24 participate as a provider or seller of WA 38 trees, if WA 38 was officially released by WSU
25 and became available for licensing by WSURF, or an agent of WSURF. The Propagation
26 Agreement specifies that, if these conditions are met, Phytelligence would need to sign a
27 separate contract with WSURF, or an agent of WSURF to take advantage of this opportunity.

14. Before it entered into the Propagation Agreement, Phytelligence was aware that agreement did not grant it permission to sell WA 38 trees, and was also aware that there was no guarantee that it would ultimately obtain permission to participate as a provider or seller of WA 38 trees. Shortly before he executed the Propagation Agreement, Phytelligence's then-CEO Chris Leyerle exchanged email messages regarding the terms of the draft agreement with Tom Kelly, WSURF's Technology Manager. In that email exchange, Mr. Leyerle stated, "My reading is that the agreement allows Phytelligence to propagate WA-38 as much as we like, and to acquire, grow and maintain derivative plant material at our sole expense, but without any ability to sell it. True?" Mr. Kelley responded, "Yes, true at this time." Mr. Leyerle also wrote, "If I understand the language correctly, we have an 'option' to sell WA-38 plantlets at an indeterminate future date if and only if WSU/WSURF decide both to commercialize and to grant us a separate license for the purpose of selling." In response, Mr. Kelly stated Mr. Leyerle's understanding was correct and warned that "there exists the possibility that if we license WA 38 to an exclusive licensee, that company/person/group may want to do his/her own plant propagation without outside assistance or may want to do that under contract with its own contractors." Not long after this email exchange, Mr. Leyerle signed the Propagation Agreement on behalf of Phytelligence.

C. Commercialization of WA 38

15. In 2014, after U.S. Plant Patent No. 24,210 issued, WSU entered into a management contract with Proprietary Variety Management, LLC ("PVM") under which PVM would commercialize WA 38, by licensing nurseries to propagate WA 38 trees and sell them to growers, and by licensing growers to grow WA 38 trees and sell apples from those trees under the COSMIC CRISP trademark. The management contract provides that PVM will work with the Northwest Nursery Improvement Institute ("NNII"), a nonprofit association of nurseries located in the Pacific Northwest that grow and sell fruit trees for the tree fruit industry, in the commercialization process. Namely, PVM would subcontract exclusively with NNII, which

1 would then grant licenses to its member and affiliated nurseries allowing them to propagate
2 WA 38 trees for sale to growers.

3 16. As of summer 2014, commercial licenses to propagate and sell WA 38 trees
4 were available to any member of NNII. By spring 2017, eleven nurseries had obtained such
5 licenses.

6 17. Phytelligence did not take any steps to obtain a license for commercial
7 propagation of WA 38 trees until late March 2016, when it contacted WSU asking how to
8 obtain one. In early April 2016, WSU put Phytelligence in touch with PVM and NNII, who
9 instructed Phytelligence to submit an application for membership in NNII as a first step toward
10 obtaining a commercial propagation license. Phytelligence never submitted an application for
11 membership in NNII.

12 18. Phytelligence again contacted WSU regarding obtaining a commercial
13 propagation license for WA 38 in 2017. WSU informed Phytelligence in June 2017 that it
14 should contact NNII to start the process of becoming a member. In response, Phytelligence
15 asked to receive a commercial propagation license for WA 38 without having to become a
16 member of NNII by receiving a license directly from WSU or PVM.

17 19. In an effort to accommodate Phytelligence, in September 2017, WSU and PVM
18 offered Phytelligence three ways in which it could obtain a commercial license to propagate
19 and sell WA 38 trees. The first option was the one contemplated in the management contract
20 between WSU and PVM: Phytelligence would apply for and obtain membership in NNII, and
21 receive from NNII a license to propagate and sell WA 38 trees. Alternatively, if Phytelligence
22 chose not to apply for membership in NNII, or if NNII were to reject its application for
23 membership, Phytelligence could commercially propagate WA 38 under the other two options:
24 either by contracting with an NNII member nursery, or by contracting with a grower having
25 land in the state of Washington who is unable to fulfill its needs for WA 38 trees from NNII
26 member nurseries. Phytelligence declined to pursue any of these three options and never
27 applied to become a member of NNII.

20. In December 2017 and January 2018, WSU learned that Phytelligence had sold and delivered WA 38 trees to a grower despite the prohibitions of the Propagation Agreement. Documents that WSU obtained from Phytelligence showed that in April 2016, Phytelligence sold 135,000 WA 38 trees, using the COSMIC CRISP trademark, to a grower, Evans Fruit Company. Phytelligence was aware in April 2016 that it did not have permission to sell WA 38 trees or to use the COSMIC CRISP trademark.

21. This sale was a clear violation of the Propagation Agreement, and also of WSU's patent and trademark rights. WSU therefore notified Phytelligence on January 16, 2018, that it was terminating the Propagation Agreement, effective March 17, 2018. WSU also directed Phytelligence to destroy all WA 38 plant material in its possession, custody, or control within 30 days, as required by Section 7 of the Propagation Agreement. In the same letter by which it terminated the Propagation Agreement, WSU stated that Phytelligence could still pursue the established PVM/NNII process for obtaining a WA 38 license, i.e., applying for and obtaining membership in NNII and obtaining a commercial propagation license via NNII.

22. To date, Phytelligence has refused to destroy the WA 38 plant material in its possession, custody, or control.

IV. CLAIMS FOR RELIEF

Claim 1 - Breach of Propagation Agreement

23. WSU and its predecessor, WSURF, have at all times performed all the stipulations, conditions, and agreements stated in the Propagation Agreement with Phytelligence to be performed by them and have done so in the manner specified by the Propagation Agreement.

24. Phytelligence has materially breached the Propagation Agreement by shipping, transporting, transferring, offering to sell, and selling WA 38 plants to others, including at least Evans Fruit Company. This material breach goes to the essence of the Propagation Agreement.

25. WSU properly terminated the Propagation Agreement effective March 17, 2018 pursuant to the notice of termination it gave Phytelligence on January 16, 2018.

1 26. Phytelligence has materially breached the Propagation Agreement by failing to
2 destroy, or relinquish control of, WA 38 plant material within its possession, custody, or
3 control within 30 days of WSU's January 16, 2018 notice of termination, i.e. by February 15,
4 2018.

5 27. WSU has been damaged by Phytelligence's material breaches of the Propagation
6 Agreement in an amount to be proven at trial.

7 **Claim 2 – Patent Infringement**

8 28. Phytelligence has infringed U.S. Plant Patent No. 24,210 by offering for sale and
9 selling the plants of the WA 38 cultivar that the patent describes and claims, in violation of 35
10 U.S.C. §§ 163 and 271(a).

11 29. Phytelligence's infringing conduct was and is without authority, consent, or
12 license.

13 30. Phytelligence has been on notice of U.S. Plant Patent No. 24,210 since at least
14 as early as March 2016, when it asked WSU how to obtain a license to sell WA 38.

15 31. Phytelligence infringed U.S. Plant Patent No. 24,210 despite an objectively high
16 likelihood that its actions constituted infringement of this valid patent. Phytelligence's
17 infringement of U.S. Plant Patent No. 24,210 therefore has been willful.

18 32. WSU has suffered irreparable harm, and will continue to suffer irreparable
19 harm, unless Phytelligence is enjoined from infringing U.S. Plant Patent No. 24,210. WSU has
20 no adequate remedy at law.

21 33. WSU is entitled to recover from Phytelligence the damages sustained by WSU
22 as a result of Phytelligence's infringing acts in an amount WSU will prove at trial, including,
23 but not limited to, lost profits or reasonable royalty, together with interest and costs, as well as
24 attorneys' fees, should the Court deem the case to be exceptional.

25 **Claim 3 – False Designation of Origin**

26 34. Phytelligence's sale of WA 38 trees using the COSMIC CRISP trademark is
27 likely to cause confusion, or to cause mistake, or to deceive as to the affiliation, connection, or

1 association of Phytelligence with WSU, or as to the origin, sponsorship, or approval of
2 Phytelligence's goods, services, or commercial activities by WSU, in violation of the Lanham
3 Act, 15 U.S.C. § 1125(a).

4 35. Phytelligence's actions have been willful and intentional, making this an
5 exceptional case pursuant to 15 U.S.C. § 1117.

6 **Claim 4 – Common Law Trademark Infringement and Unfair Competition**

7 36. Phytelligence's sale of WA 38 trees using the COSMIC CRISP trademark
8 constitutes common law trademark infringement and unfair competition in violation of the laws
9 of the State of Washington.

10 **Claim 5 – Violation of Consumer Protection Act**

11 37. Phytelligence's sale of WA 38 trees using the COSMIC CRISP trademark
12 affects and is injurious to the public interest, and constitutes unfair and deceptive acts or
13 practices and unfair methods of competition in the conduct of trade or commerce in violation of
14 RCW 19.86.020 that have harmed WSU in its business and property. WSU is entitled to
15 recover damages and attorneys' fees pursuant to RCW 19.86.090.

16 **PRAYER FOR RELIEF**

17 WHEREFORE, WSU asks the Court enter judgment:

18 A. Dismissing the Complaint for Breach of Contract and Declaratory Judgment
19 with prejudice, and without Phytelligence taking anything by it;

20 B. Finding that the Propagation Agreement was terminated effective March 17,
21 2018;

22 C. Awarding WSU damages adequate to compensate for Phytelligence's breach of
23 the Propagation Agreement; infringement of U.S. Plant Patent No. 24,210 (including
24 supplemental damages for any post-verdict patent infringement up until entry of the final
25 judgment with an accounting as needed, together with prejudgment and post-judgment interest
26 on the damages awarded; all of these damages to be enhanced in an amount up to treble the
27

1 amount of compensatory damages pursuant to 35 U.S.C. § 284); infringement of its trademark
2 rights; and violation of the Consumer Protection Act;

3 D. Granting preliminary and permanent injunctions enjoining Phytelligence, its
4 officers, agents, servants, employees, and attorneys, and other persons who are in active concert
5 or participation with any of the foregoing, from further acts of infringement of U.S. Plant
6 Patent No. 24,210 and from using in any manner the COSMIC CRISP trademark or any other
7 trademark confusingly similar to the COSMIC CRISP mark;

8 E. Granting preliminary and permanent injunctions directing Phytelligence, its
9 officers, agents, servants, employees, and attorneys, and other persons who are in active concert
10 or participation with any of the foregoing, to destroy or return to WSU WA 38 plant material
11 within its possession, custody, or control;

12 F. Finding this case is exceptional under 35 U.S.C. § 285 and 15 U.S.C. § 1117(a);

13 G. Awarding WSU its costs (including expert fees) and attorneys' fees; and

14 H. Granting such other and further relief as the Court deems just and proper.

15 DATED March 16, 2018.

16 Davis Wright Tremaine LLP
17 Attorneys for Defendant Washington State
18 University

19 By: s/ Stuart R. Dunwoody
20 Stuart R. Dunwoody, WSBA #13948
21 Conner G. Peretti, WSBA #46575
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CERTIFICATE OF SERVICE

I hereby certify that on this day, I caused the document to which this certificate is attached to be served as indicated:

Daniel A., Brown
Daniel J. Velloth
WILLIAMS, KASTNER & GIBBS PLLC
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Attorneys for Plaintiff

- ☐ Via Legal Messenger
- ☐ U.S. Mail, postage prepaid
- ☐ Federal Express
- ☐ Facsimile
- ☒ E-Serve Application
- ☐ Email

I declare under penalty of perjury under the laws of the State of Washington that the foregoing is true and accurate.

Executed at Seattle, Washington this 16^h day of March, 2018.

s/Stuart R. Dunwoody
Stuart R. Dunwoody

EXHIBIT A



US00PP24210P3

(12) **United States Plant Patent**
Barritt

(10) **Patent No.:** **US PP24,210 P3**
(45) **Date of Patent:** **Feb. 4, 2014**

(54) **APPLE TREE NAMED 'WA 38'**

(50) Latin Name: *Malus domestica*
Varietal Denomination: **WA 38**

(75) Inventor: **Bruce H. Barritt**, Okanogan Centre
(CA)

(73) Assignee: **Washington State University Research
Foundation**, Pullman, WA (US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 93 days.

(21) Appl. No.: **13/385,545**

(22) Filed: **Feb. 23, 2012**

(65) **Prior Publication Data**
US 2013/0227750 P1 Aug. 29, 2013

(51) **Int. Cl.**
A01H 5/00 (2006.01)

(52) **U.S. Cl.**
USPC Plt./161

(58) **Field of Classification Search**
USPC Plt./161, 170
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

PP7,197 P * 3/1990 Luby et al. Plt./161

* cited by examiner

Primary Examiner — Howard Locker

(74) *Attorney, Agent, or Firm* — Morrison & Foerster LLP

(57) **ABSTRACT**

A new and distinctive variety of a *Malus domestica* apple tree, named 'WA 38' that is distinguished by its intense and nearly full color, internal indices that are different than its parents, and its long common storage life.

4 Drawing Sheets

1

Latin name of the genus and species of the claimed plant:
Botanical/commercial classification: *Malus domestica*/apple
tree.

Varietal denomination: 'WA 38'.

BACKGROUND OF THE INVENTION

The invention refers to a new plant variety of apple tree (*Malus domestica*) named 'WA 38'. This new variety is distinguished by its intense and nearly full color, internal indices that are different than its parents, and its long common storage life.

'WA 38' originated as a single seedling from a cross of the patented varieties 'Enterprise' (U.S. Plant Pat. No. 9,193) and 'Honeycrisp' (U.S. Plant Pat. No. 7,197) in Year 1. The germinated seedling was grown in a greenhouse at Wenatchee, Wash. In September of Year 2, 'WA 38' was chip budded onto 'M9' rootstock and the resulting tree was planted in the evaluation orchard at Douglas County, Wash. in the spring of Year 5. Fruit from this originally budded tree were observed in Year 7 and Year 8 and due to the unique fruit quality traits, 'WA 38' was selected and second generation trees were made by chip budding onto M9 rootstock in the fall of Year 8. Second generation trees were planted at three locations in Washington State near Chelan, Douglas County, Wash.; near East Wenatchee, Douglas County, Wash.; and near Basin City, Franklin County, Wash. A comparison of second generation trees against the originally budded tree, including trunk, branches, leaves, flowers, and fruit; showed them to be essentially the same and stable over the years checked (Years 12, 13, 14, and 15).

SUMMARY OF THE INVENTION

The 'WA 38' apple tree variety exhibits exceptionally long storage life in common storage. 'WA 38' loses little of its

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crispness, sugar, and acid following five months of storage, whereas that of its parents declines considerably. The appearance of 'WA 38' fruit is nearly full color and has an intensity that is unique among other apple varieties of the same season.

5 Like both its parents (i.e., 'Enterprise' and 'Honeycrisp'), 'WA 38' is heterozygous for the ASC1 gene and homozygous for the ACO1 gene, both of which are involved in ethylene production. These genes confer low ethylene production, which in turn affects storage life. The ACS1 and ACO1 genotypes were determined using the method described in Zhu and Barrit (2008). The harvest maturity of 'WA 38' is approximately three weeks later than that of the parental variety 'Honeycrisp', and approximately three weeks earlier than that of the parental variety 'Enterprise'. Additionally, the combination of fruit appearance and internal eating qualities of the fruit of 'WA 38' is distinctly different than that of the parental varieties 'Honeycrisp' and 'Enterprise'.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1. View of the dormant stage of 'WA 38' originally budded tree.

FIG. 2. View of blossoms from the originally budded tree of 'WA 38'.

FIG. 3. View of typical 'WA 38' originally budded tree fruit at harvest maturity.

FIG. 4. View comparing harvest mature fruit of 'WA 38' (top row), and its parents 'Enterprise' (center row), and 'Honeycrisp' (bottom row).

DETAILED BOTANICAL DESCRIPTION

The following detailed description, except for description of fruit, is from the 'WA 38' originally budded tree grown at Orondo, Douglas County, Wash. The 'WA 38' tree was 11 years old when measurements were taken. The USDA hardi-

US PP24,210 P3

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ness zone 6b. All color references are from The R.H.S. Colour Chart by The Royal Horticultural Society. The seedling was not grown on its own roots, as standard production of apple trees involves propagation on a rootstock.

Tree:

Type.—Spreading; moderately heavy spur development, and precocious with spur development beginning on two-year old wood.

Vigor.—Considered moderate on the low side with the current season's growth ranging from 26.0 cm to 50.2 cm with an average of 37.0 cm.

Overall shape.—Original budded tree was supported by securing the central leader to a 3-wire trellis; no branch training was performed and pruning was minimal; only branches that were likely to impact routine field operations or that were broken were removed; as such, the overall observed shape was upright and spreading with a height of 16 feet and width of 14 feet.

Height.—16 feet.

Width.—14 feet.

Hardiness.—Considered hardy for the regions grown in; USDA hardiness zone 6b.

Productivity.—Considered high.

Trunk:

Size.—Diameter at a height of 30 cm above graft union is 10.3 cm.

Bark texture.—Considered smooth for 11 year old tree.

Bark color.—Greyed-orange (RHS 199A).

Lenticels.—Present and moderate in number averaging 6 lenticels per 9 cm²; shape is elongated and oriented horizontally; average width is 1.7 mm; average length is 10.9 mm.

Lenticels color.—Brown (RHS N200A).

Branches:

First year branches.—Diameter: at mid-point of growth ranges from 3.7 mm to 5.0 mm and averages 4.5 mm. Length: current season's growth ranges from 26.0 cm to 50.2 cm with an average of 37.0 cm. Bark color: greyed-orange (RHS 176A). Lenticels: numerous present, averaging 17 lenticels in a 1 cm section of branch; shape is mostly round with a few oval in shape; oriented vertically; diameter ranges from 0.4 mm to 0.9 mm; oval dimensions range from 1.4 mm to 1.6 mm in length and 0.7 mm in width; and color is green-white (RHS 157D).

Scaffold branches.—Size: ranges from 4.2 cm to 7.9 cm in diameter with an average of 5.9 cm as measured 10 cm from the trunk. Angle: moderately flat to near flat, ranging from 75 to 85 degrees from vertical. Branch color: grey-brown (RHS 199A). Lenticels: few in number, averaging 11 lenticels per 9 cm²; shape and size is variable, mostly elongated, with some round; length ranges from 8.4 mm to 18.9 mm and width ranges from 1.0 mm to 1.7 mm; round diameter ranges from 1.0 mm to 1.3 mm; orientation is horizontal; and color is greyed-orange (RHS 166D).

Leaves:

Shape.—Considered broadly acute on the round side and is upward folding.

Texture.—Upper surface is leathery with some puckering; lower surface is smooth with some puckering.

Sheen.—Upper surface has a high sheen.

Pubescence.—Present on lower surface only covering 100% and is moderately heavy; color of lower surface pubescence is greyed-yellow (RHS 160D); light covering of white pubescence (RHS 155B) is found along veins of upper surface.

Length.—Blade length ranges from 7.2 cm to 8.9 cm with an average of 8.1 cm.

Width.—Ranges 5.2 cm to 6.3 cm with an average of 5.7 cm.

Margin.—Serrate with a few bi-serrate regions.

Tip.—Acuminate.

Base.—Rounded.

Stipules.—Present on most petioles; 0 to 2 present with most being 1; shape is acicula; length ranges from 2.0 mm to 6.3 mm with an average of 4.4 mm; width at base ranges from 1.0 mm to 1.6 mm with an average 1.3 mm; color of upper and lower surface is yellow-green (RHS 1146D); and pubescence is present on both upper and lower surfaces, considered fine with 100% coverage over both surfaces; pubescence color is greyed-yellow (RHS 160D).

Leaf blade color.—Upper surface is yellow-green (RHS 147A); lower surface is yellow-green (RHS 147C).

Mid-vein.—Prominent with considerable fine pubescence on under surface of vein; width at mid blade ranges from 1.1 mm to 1.6 mm with an average 1.4 mm; upper surface color is yellow-green (RHS 147A); lower surface color is yellow-green (RHS 147C); pubescence covering 100% of the lower surface is greyed-yellow (RHS 160D).

Petiole.—Length ranges from 24.5 mm to 35.9 mm with an average of 30.1 mm; shallow groove runs the entire length of the upper surface; diameter at mid point ranges from 1.4 mm to 1.9 mm with an average of 1.7 mm; color of upper surface is yellow-green (RHS 145C); color of lower surface is yellow-green (RHS 145D); pubescence is abundant and fine over the entire length and circumference of the petiole; color of pubescence is greyed-yellow (RHS 160D).

Buds.—Usually on single spurs; shape is considered acute with base being truncate with spur; diameter ranges from 4.1 mm to 4.9 mm with an average of 4.4 mm; length ranges from 6.6 mm to 10.2 mm with an average of 8.3 mm; bud scale color is purple (RHS N77A).

Flowers: Bloom started April 19 and finished May 6, with full bloom date May 1 at Orondo, Douglas County, Wash.; number of blossoms per bud ranges from 4 to 6 with an average of 6; fragrance is apple-blossom like.

Size.—Considered large, when fully expanded the diameter ranged from 51.6 mm to 57.5 mm with an average of 53.9 mm.

Petal.—Width ranges from 18.0 mm to 21.1 mm with an average 19.2 mm; length ranges from 24.4 mm to 27.3 mm with an average 25.2 mm; shape is elliptic; typical petal number is five; petal margins are smooth, both tip and base of petal are rounded; petal surface is slightly glabrous.

Color.—Both upper and lower surfaces are white (RHS 155B); where exposed prior to opening, lower surface has red-purple highlights (RHS 64B).

Stamen.—Number ranges from 18 to 21 with an average of 21; filament length ranges from 5.5 mm to 11.2 mm with an average of 8.5 mm; filament color is white (RHS 155C); anthers are kidney shaped with an average size of 1.6 mm wide x 2.7 mm long; mature anther color is yellow (RHS 10D).

Pistil.—Typically five pistils per flower; length ranges from 14.7 mm to 19.7 mm with an average of 17.2 mm. Styles: five in number, fused at 1/2 distance from basal end with the fused region covered in white (RHS 155B) pubescence; color is yellow-green (RHS 145B). Stigma: round club shaped 0.6 to 0.7 mm in diameter; color is yellow-green (RHS 153B).

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Sepals.—Five per blossom; shape is considered thin del-
toid with the tip being acuminate and the base being
truncate; length ranges from 13.2 mm to 8.8 mm with
an average of 11.9 mm; width ranges from 3.8 mm to
4.4 mm with an average of 4.1 mm; abundant white
(RHS 155B) pubescence is present on both upper and
lower surfaces; upper surface color is yellow-green
(RHS 146C); lower surface color is yellow-green
(RHS 148D); both upper and lower tip surfaces red-
purple highlight color (RHS 64B).

Peduncle.—Length ranges from 16.1 mm to 23.0 mm
with an average of 19.5 mm; color is yellow-green
(RHS 146B); considerable white downiness (RHS
155B) present over the entire surface.

Pollen.—Moderate amounts of pollen are produced,
with yellow color (RHS 10D).

Fruit: Observations and testing from 1st generation tree fruit
grown at East Wenatchee, Douglas County, Wash.; produc-
tion is moderate to heavy, falling within the range of exist-
ing commercial cultivars.

Form.—Considered uniform round-conical.

Size.—Considered medium large with a normal crop
level; equatorial diameter ranges from 80.0 mm to
88.3 mm with an average of 83.9 mm; axis diameter
ranges from 76.4 mm to 85.6 mm with an average of
79.0 mm; typical weight ranges from 254 g to 332 g
with an average of 281 g.

Stem.—Considered long and medium thick; length
ranges from 22.3 mm to 29.5 mm and averages 25.7
mm; diameter ranges from 1.8 mm to 2.8 mm with an
average of 2.3 mm; color is yellow-green (RHS
146B).

Stem cavity.—Width ranges from 28.3 mm to 36.1 mm
with an average 32.6 mm; depth ranges from 20.9 mm
to 23.9 mm with an average of 22.7 mm; occasional
light russet over bottom 1/3 of cavity; cavity shape is
acuminate; stem cavity is not lipped.

Basin cavity.—Considered abrupt; surface is wavy;
puckered around eye; light ribbing; green-white
(RHS 157D) downy hairs at base; width ranges from
25.9 mm to 31.5 mm with an average of 28.8 mm;
depth ranges from 11.6 mm to 18.4 mm with an aver-
age of 13.8 mm.

Eye.—Erect convergent; sepal color is yellow-green
(RHS 148C); sepals contain green-white (RHS 157D)
downy hairs.

Skin.—Texture is considered tender; thickness is consid-
ered thin; appearance is considered more streaked
than marbled with scant bloom present; skin color of
over streak is greyed-purple (RHS 183B); skin color
of under streak is greyed-purple (RHS 183D); skin
under color is red (RHS 48A); skin lenticels are
numerous, small, round, smooth with the skin; skin
lenticels are more numerous towards the calyx end
averaging 4 lenticels per cm² at stem end, 11 lenticels
per cm² at calyx end; areolar at the stem end; color is
white (RHS 155B) and areolar color is from the red
group (RHS 48A); skin lenticel size ranges from 0.2
mm to 0.5 mm in diameter with areolar diameter
ranging from 1.0 mm to 1.5 mm.

Core.—Core position is considered median; core line
position is basal meeting; core diameter ranges from
38.7 mm to 46.3 mm with an average of 42.9 mm; core
length ranges from 28.2 mm to 32.8 mm with an
average of 30.5 mm; core shape is flat conical.

Cell (locule or carpel).—Five per fruit; not tufted; shape
is elliptical; length ranges from 17.1 mm to 23.4 mm
with an average of 19.6 mm; width (axis/edge) ranges
from 10.9 mm to 12.8 mm with an average of 11.6
mm; depth (wall/wall) ranges from 5.7 mm to 7.5 mm
with an average of 6.5 mm.

Tube.—Cone shaped.

Stamen position.—Median relative to stamens situated
approximately in the middle of the tube (the cavity
just beneath the eye).

Cell attachment to axis.—Axial and open, meaning cells
are symmetrical and each cell is open.

Seed.—Number ranges from 1 to 3 with an average of 2;
shape is acute; seed length ranges from 8.3 mm to 9.4
mm with an average of 9.0 mm; seed width ranges
from 4.0 mm to 4.7 mm with an average of 4.3 mm;
seed color is brown (RHS 200D).

Flesh.—Crisp, melting, juicy, sub-acid with mild apple
like flavor; color is yellow-white (RHS 158D); flesh
browning very little to none after one hour; quality is
very good.

Aroma.—Apple like and moderate in intensity.

Date of harvest maturity.—Typically late September/
early October, observed harvest maturity of current
season was October 2; for any one location, 'WA 38'
typically can be classed as a single pick variety; how-
ever, harvest can be extended into two picks over a
two week period.

Genotype.—WA 38 is heterozygous (1,2) for ACS1 and
is homozygous (2,2) for ACO1.

Keeping quality.—Excellent; up to five months in com-
mon storage; flesh browns very slightly after being
exposed.

Pollination: Any diploid apple of the same bloom season.

Use: For dessert.

Disease and insect resistance: May have some resistance to
Venturia inaequalis (apple scab) from its maternal parent
'Enterprise'; otherwise is considered to be susceptible to
all insects and diseases found in the region of Central
Washington.

Table 1 represents maturity indices of the 'WA 38', 'Hon-
eycrisp' and 'Enterprise' varieties. In Table 1, pressure is a
measure of fruit firmness, °Brix is a measure of soluble solid
content of fruit, and titratable acid is a measure of fruit acidity.
The mature harvest date of 'Enterprise' was October 23, Year
15, and the mature harvest date of 'Honeycrisp' was Septem-
ber 10, Year 15.

TABLE 1

Maturity indices					
Variety	Sample Run Date	Pressure (Newtons)	°Brix	pH	Titratable Acid (g/ 100 ml)
'WA 38'	October 2, Year 15	82	12.6	3.47	0.62
'Honeycrisp'	September 10, Year 15	62	12.7	3.52	0.42
'Enterprise'	October 23, Year 15	86	14.3	3.47	0.68

What is claimed:

1. A new and distinct apple tree variety named 'WA 38', as
herein shown and described.

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Figure 1



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Figure 2



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Figure 3



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Figure 4

